Remarks/Arguments

The specification has been amended in accordance with the Examiner's helpful comments to update the status of the noted applications and insert corresponding patent numbers.

Claims 1-6, 20-88, 92, 93 have been cancelled.

Claim 7 has been amended to independent form and also to further distinguish over the prior art. Consideration of claim 7 in view of the following remarks is respectfully requested.

Claim 7 has been rejected under 35 U.S.C. 102(b) over Purvey U.S. Patent 5,906,733. Claim 7 has been rejected under 35 U.S.C. 103(a) over Purvey '733 in view of Holm et al U.S. Patent 5,779,900.

Purvey '733 discloses a liquid cleaning system including a backflushing filter and a centrifugal cleaner therefor. System liquid is drawn from reservoir 11 by pump 12 and supplied through filter 13 to utilization means 14 and then returned at 15 to reservoir 11. The filter 13 is intermittently backflushed, and the backflushed fluid is supplied at rejection conduit 24 to a centrifugal cleaner 25 driven by a fluid operated drive means 50 supplied with drive liquid through supply conduit 52 from pump 12. The fluid being filtered is used to drive centrifugal cleaner 25, and the same pump 12 is used to supply/drive both. As noted by the Examiner, Purvey '733 discloses an alternate embodiment at Col. 9, lines 6-10, wherein the drive fluid may comprise the liquid pumped through the system as disclosed, or may comprise a fluid, liquid or gas from a separate source. As shown in Fig. 2, the centrifugal cleaner has a main inlet passage 34 receiving backflushed fluid from filter 13 through conduit 24, and has an auxiliary inlet passage 51 receiving drive fluid through conduit 52. Central stationary spindle or shaft 30 has two coaxial passages, namely a first main passage through pipe 71 carrying backwashed contaminant-laden fluid, and a second auxiliary input passage 51 concentrically surrounding passage 71 and carrying the drive fluid to auxiliary aperture 66 then to drive conduit 54. The drive fluid pressure for rotation is provided by pump 12 through conduit 52. The backflushing fluid pressure is provided through conduit 24 from

filter 13. Filter elements 20 in filter 13 have an inlet surface 21 and an outlet surface 22. As noted at Col. 4, lines 33+, during backflushing the outlet surface 22 is left exposed to the outlet chamber pressure, i.e. the pressure at outlet chamber 18. This in turn supplies backflushing pressure for the fluid to flow through conduit 24 to centrifugal cleaner 25.

Amended claim 7 requires that the contaminant separator comprise a centrifuge (82) having a rotor (96) separating contaminant from working fluid, and a storage container (108) storing the contaminant, wherein the rotor (96) is driven to rotate by a motive force, and wherein the motive force and the cleaning fluid are each provided by pressurized fluid, namely pressurized drive fluid for the motive force, and pressurized backflushing fluid for the cleaning fluid. Amended claim 7 requires that the backflushing pressure be applied by pressurized backflushing fluid from the defined second inlet (52) of the filter. In contrast, in Purvey '733 the filter 13 has no second inlet. Filter 13 in Purvey '733 has an inlet at 17, a first outlet at 18, and a second outlet at 24. Furthermore, in Purvey '733 there is no application of backflushing pressure applied by backflushing fluid from such second inlet. Instead, in Purvey '733 the backflushing pressure is applied by outlet 18. There is no teaching nor suggestion in Purvey '733 of a second filter inlet, nor backflushing pressure applied by pressurized backflushing fluid at such second inlet to in turn supply pressurized backflushing fluid for supplying backflushed contaminant to the centrifugal cleaner.

Amended claim 7 further requires that the motive force be applied by pressurized drive fluid externally of the rotor (96) and externally of the storage container (108). In contrast, in Purvey '733 the motive force for rotation of the centrifugal cleaner 25 is applied by pressurized drive fluid through conduit 52 to passage 51 within rotor 40. In contradistinction, amended claim 7 requires that the motive force be applied by pressurized drive fluid externally of the rotor. In further contradistinction, amended claim 7 also requires that the motive force be applied by pressurized drive fluid externally of the storage container (108). This further distinguishes over and is not met by Purvey '733 nor reasonably suggested therein.

Consideration and allowance of amended claim 7 is earnestly solicited.

Claim 8 depends from claim 7 and is believed allowable for the reasons noted above. Furthermore, claim 8 requires that the rotor of the centrifuge be driven to rotate by a motive force, and that the motive force and the noted cleaning fluid are each provided by pressurized air. This combination is not taught in the art.

Claim 9 depends from claim 8 and is believed allowable for the reasons noted above. Furthermore, claim 9 requires that the source of cleaning fluid comprise a source of compressed air, and that the same such source of compressed air supply both the motive force for the rotor and the cleaning fluid for the filter. This combination is not taught in the art.

Claim 10 depends from claim 7 and is believed allowable for the reasons noted above. Furthermore, claim 10 requires that the storage container comprise a second filter media element reducing fluid turbulence particularly during rotor speed gradients at start-up and trapping contaminant particles and reducing particle-entrainment during rotor speed gradients. This combination is not taught in the art.

Claim 11 depends from claim 10 and is believed allowable for the reasons noted above. Furthermore, claim 11 requires that the second filter media element comprise a matrix of filter material of at least 75% void volume. This limitation is not met in the art.

Claim 12 depends from claim 11 and is believed allowable for the reasons noted above. Furthermore, claim 12 requires that the void-volume be at least 95%.

Claim 13 depends from claim 7 and is believed allowable for the reasons noted above. Furthermore, claim 13 requires that the centrifuge have a minimum capacity equal to the capacity of the stored contaminant plus the capacity of the filter. This combination is not taught in the art.

Claim 14 depends from claim 13 and is believed allowable for the reasons noted above. Furthermore, claim 14 requires that the rotor include an annular chamber providing the noted storage container.

Claim 15 depends from claim 7 and is believed allowable for the reasons noted above. Furthermore, claim 15 requires that the rotor of the centrifuge be driven to

rotate by a motive force, and that the motive force and the cleaning fluid are each provided by pressurized air, and that the source of cleaning fluid comprise a source of compressed air, and that the source of compressed air supply both the motive force for the rotor and the cleaning fluid for the filter. Claim 15 further requires a first valve controlling the supply of pressurized air from the source of compressed air to the defined second inlet of the filter, and a second valve controlling the supply of pressurized air from the source of compressed air to the rotor of the centrifuge, and further requires that the first and second valves operate such that the rotor begins spinning prior to introduction of contaminant-laden working fluid to the inlet of the centrifuge such that the centrifugal force of the already spinning rotor creates a hollow central air core in the contaminant-laden working fluid allowing escape of air. This combination is not taught in the art.

Claim 16 has been amended to overcome the 35 U.S.C. §112 rejection.

Claim 16 has been rejected under 35 U.S.C. §102(b) over Purvey '733. Claim 16 has been rejected under 35 U.S.C. §103(a) over Purvey '733 in view of Holm et al. '900. Consideration of claim 16 in view of the following remarks is respectfully requested.

Claim 16 requires that the backflushing pressure be applied by pressurized backflushing fluid from the defined second inlet (52) of the filter, and hence is distinct over the art for the reasons noted above. Claim 16 further requires in combination that the centrifuge have a batch processing mode operative during the backwashing mode of the cleanable filter and receiving contaminant-laden working fluid from the second outlet of the cleanable filter and separating and storing contaminant. This combination is not taught in the art. To attempt to combine Holm et al. '900 with Purvey '733 would be contrary to the teachings of Purvey '733 because Purvey requires that the backflushing pressure be applied by backflushing working fluid pressure from first outlet 18 to second outlet 24.

Consideration and allowance of amended claim 16 is earnestly solicited.

Claim 17 depends from claim 16 and is believed allowable for the reasons noted above. Furthermore, claim 17 requires in combination that the cleanable filter be a

continuous flow filter in the filtering mode and that the centrifuge be a non-continuous flow batch processor having a rotor driven during the backwash mode of the cleanable filter and separating contaminant, and that the rotor be non-driven during the filtering mode of the cleanable filter. This combination is not taught in the art.

Claim 18 depends from claim 16 and is believed allowable for the reasons noted above. Furthermore, claim 18 defines a combination requiring a plurality of cleanable filters having respective second outlets connected in parallel to the inlet of the centrifuge.

Claim 19 depends from claim 18 and is believed allowable for the reasons noted above. Furthermore, claim 19 requires that the centrifuge have a plurality of batch processing modes operating serially sequentially, one mode for each of the cleanable filters.

Added claim 94 depends from claim 7 and is believed allowable for the reasons noted above. Furthermore, claim 94 requires that the backflushing fluid and the working fluid be different fluids. In contrast, in Purvey '733 the working fluid and the backflushing fluid are the same fluid. The alternate embodiment set forth in Purvey '733 at Col. 9, lines 6-10, suggests a different drive fluid, but contains no suggestion nor hint of using different backflushing and working fluids. The latter modification is not reasonably inferable from Purvey '733 because the backflushing pressure is derived from outlet 18, and hence the working fluid and the backflushing fluid are the same. Consideration and allowance of claim 94 is earnestly solicited.

Claim 95 depends from claim 94 and is believed allowable for the reasons noted above. Furthermore, claim 95 requires that the drive fluid be the same as the backflushing fluid and be different than the working fluid. In the first disclosed embodiment in Purvey '733 the drive fluid is the system working fluid and hence does not satisfy the requirement of claim 95 that the drive fluid be different than the working fluid. In the alternate embodiment noted in Purvey '733 at Col. 9, lines 6-10, the drive fluid may be different than the working fluid, however such alternate embodiment in Purvey '733 then does not satisfy the conjunctive requirement in claim 95 that the drive fluid be the

same as the backflushing fluid. Consideration and allowance of claim 95 is earnestly solicited.

Claim 96 depends from claim 7 and is believed allowable for the reasons noted above. Furthermore, claim 96 defines a combination requiring that the rotor (96) have an inner cylindrical sidewall (102), and has an outer cylindrical sidewall (106) spaced radially outwardly of the inner cylindrical sidewall (102), and comprising an annular space (108) providing the storage container, and comprising a turbine (128) on the outer cylindrical sidewall (106) and external of the annular space (108) for causing rotation of the rotor (96) in response to impingement of pressurized drive fluid against the turbine (128). In contrast, Purvey '733 does not have a turbine on the outer cylindrical sidewall of rotor 40 nor external of the annular space therein, nor do the remaining references, whether alone or together, suggest the defined combination, nor how to modify the references to arrive at the defined combination. Consideration and allowance of claim 96 is earnestly solicited.

Claim 97 depends from claim 96 and is believed allowable for the reasons noted above. Furthermore, claim 97 defines a combination requiring high-loft filter media (148) in the annular space (108), the high-loft filter media comprising a matrix of filter material of at least 75 % void volume, the matrix of filter material of the high-loft filter media being selected from the group consisting of fibrous material, polyester, foam including reticulated foam, spun bonded web, wire mesh including stainless steel, and sintered material including porous composites. Claim 97 further requires that the rotor (96) have a base plate (110) extending between the inner and outer cylindrical sidewalls (102 and 106), and that the rotor base plate 110 have a drain passage (111) communicating with the annular space (108) and effective upon stopping of rotation to drain fluid therefrom, and that the rotor base plate (110) have a configured surface (160) facing the annular space (108) and gravitationally guiding drainage of fluid therefrom to the drain passage (111) upon stopping of rotation, and further that the configured surface (160) have an upper-height outer portion (162) adjacent the outer cylindrical sidewall (106), a lower pocket portion (164), and an intermediate-height inner portion (166)

adjacent the inner cylindrical sidewall (102), and further that the configured surface (160) be tapered radially inwardly and downwardly from the upper-height outer portion (162) to the lower pocket portion (164) and then upwardly to the intermediate-height inner portion (166), and further that the upper-height outer portion (162) have a height higher than the intermediate-height inner portion (166), and further that the intermediate-height inner portion (166) have a height greater than the lower pocket portion (164), and further that the drain passage (111) be at the intermediate-height inner portion (166), such that separated contaminant not retained by the high-loft filter media (148) is collected in the lower pocket portion (164), and fluid above the collected contaminant in the lower pocket portion (164) drains to the drain passage (111). This combination is not taught nor suggested in the references. Consideration and allowance of claim 97 is earnestly solicited.

Claim 89 has been amended to independent form, and reconsideration is respectfully requested in view of the following remarks.

Claim 89 has been rejected under 35 U.S.C. 102(b) over Purvey '733. Claim 89 has been rejected under 35 U.S.C. 103(a) over Purvey '733 in view of Holm et al '900.

Claim 89 requires that the rotor (96) have a base plate (110) extending between inner and outer cylindrical sidewalls (102 and 106), and that the rotor base plate (110) have a drain passage communicating with the annular space (108) and effective upon stopping of rotation to drain fluid therefrom, and further requires that the stand pipe (180) have an upper end (186) at the defined transfer passage (146), and has a lower end (188) at the drain passage (111), and wherein the contaminant-laden fluid comprises contaminant-laden liquid in a gas stream, and such that during rotation, gas in the gas stream from the transfer passage is vented through the defined inner annular chamber (182) to the drain passage (111), and contaminant-laden liquid from the transfer passage (146) is centrifugally propelled into the outer annular chamber (184). This venting is shown at 192 in Fig. 4. Such venting is not disclosed nor possible in Purvey '733 because of septum 45 (Col. 5, line 8) blocking venting downwardly therepast through stand tube

42. In Purvey '733, there is no exit from the upper part of stand tube 42 other than through aperture 46, and hence there is no venting as at 192 in the present application and as defined in claim 89. Consideration and allowance of claim 89 is earnestly solicited.

Added claim 98 depends from claim 89 and is believed allowable for the reasons noted above. Furthermore, claim 98 requires that the standpipe (180) have an upper reach at the upper end (186) at a level vertically below the defined transfer passage (146). This is not taught in the references.

Claim 99 depends from claim 98 and is believed allowable for the reasons noted above. Furthermore, claim 99 defines a subcombination which is believed allowable.

It is believed that this application is in condition for allowance with claims 7-19, 89-91, 94-99, and such action is earnestly solicited.

Respectfully submitted,

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Atty. Docket No. 4191-00043